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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/037,422 | 10/24/2001 | Leon L. Nieczyporowicz | 907B.0005.U1(US) | 7176 |

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EXAMINER

TRAN, KHANH C

ART UNIT PAPER NUMBER

2631

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|---|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/037,422 | NIECZYPOROWICZ ET AL. GX | |
| | Examiner | Art Unit | |
| | Khanh Tran | 2631 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06/28/02, 03/15/02, 04/15/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Preliminary Amendment filed on 04/04/2002 has been entered. Claims 1, 3-11, 13-26 are pending in this Office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-10, 11, 16-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vimpari U.S. Patent 6,577,671 B1 in view of Toskala et al. U.S. Patent 6,377,606 B1.

Regarding claim 1, in column 5, lines 15-40, figure 6 illustrates a block diagram of a CDMA cellular telecommunications system 10 including a plurality of mobile stations (MSs) 12 are located within cells (Cell_1, ..., Cell_n), each of which is associated with a base transceiver station (BTS). In column 1, lines 30-50, Vimpari teaches a method for assigning spreading codes to mobile stations located within a cell. Vimpari does not disclose the set of spreading codes comprises an all one's spreading code. Figure 4 of prior art shows a conventional technique for allocating spreading codes including an all one's spreading code, code 1. Because code 1 is one of possible spreading codes, it would have been

obvious for one of ordinary skill in the art that code 1 can be included in the set of spreading codes taught in Vimpari invention.

Vimpari does not teach the claimed limitations "periodically hopping amongst individual ones of the spreading codes of the set of spreading codes as set forth in the claim". Toskala et al. teaches in an US Patent a method for reducing interference and a radio system where a signal spread-coded by digital pseudo noise is used for communication is provided. In column 3, lines 25-40, see also figure 1, the base station 10 measures the mutual interference of the signals all the time and when the mutual interference grows too high, the base station 10 sends to the subscriber terminal equipment 12 a control command with a new value is set for the phase of the spreading code of the subscriber terminal equipment 12, or the phase of the spreading code of the subscriber terminal equipment is changed continuously by hopping the phase between at least two different phases. Furthermore, referring to figure 5 of Toskala et al. invention, in column 9, lines 45-67, in the second embodiment, the subscriber terminal equipment include a spreading control means 53 causing spreading code being hopped at least between two different spreading codes. Hence, the foregoing teachings correspond to the claimed "periodically hopping amongst individual ones of the spreading codes of the set of spreading codes as set forth in the claim". Vimpari and Toskala et al. inventions apply to code division multiple access and are in the same field of endeavor. Vimpari and Toskala teachings use spreading code with the least amount of interference. In view of that, it would

have been obvious for one of ordinary skill in the art at the time the invention was made that Vimpari method can be modified to include Toskala et al. teachings. The motivation is to utilize spreading code with the least amount of interference.

Regarding claim 6, claim 6 is rejected on the same ground as for claim 1 because of similar in scope. Furthermore, in column 3, lines 17-26, Vimpari method supports the presence of high data rate mobile stations within the delay spread range that is typical for the particular cell. In column 5, lines 50-67, Vimpari invention teaches the use of intercell handovers to reallocate the spreading codes of existing communication links when better spreading codes become available. In light of the foregoing, Vimpari method performs dynamically the determination the values of the entries in the performance table and the assignment of spreading codes. Hence, the claimed limitations "*changes from currently used spreading code to a next spreading code at a symbol rate or at a multiple of the symbol rate*" are within the scope of the teaching of Vimpari invention.

Regarding claims 7, 17 and 23, Vimpari invention supports both low and high data rate mobile stations. Hence, Vimpari communications system is a variable rate system. The claimed limitation "*fixed data rate system*" is within the scope of Vimpari invention.

Regarding claims 8 and 18, Vimpari invention supports both low and high data rate mobile stations. Hence, Vimpari communications system is a variable rate system.

Regarding claims 9-10, claims 9-10 are rejected on the same ground as for claim 6 because of similar in scope. Furthermore, Vimpari invention supports both low and high data rate mobile stations. In light of the foregoing, Vimpari communications system is a variable rate system.

Regarding claim 11, claim 11 is rejected on the same ground as for claim 1 because of similar in scope. Furthermore, according Vimpari teachings, in column 3, lines 10-20, the steps of determining and assigning can be performed by a Radio Resource (RR) Management software module, or function that runs on data processor of a base station controller. Referring to figure 5 of Toskala et al. invention, in column 9, lines 45-67, in the second embodiment, the subscriber terminal equipment include a spreading control means 53 causing spreading code being hopped at least between two different spreading codes.

Regarding claim 16, claim 16 is rejected on the same ground as for claims 6 and 11 because of similar in scope.

Regarding claims 19-20, claims 19-20 are rejected on the same ground as for claim 9 because of similar in scope.

Regarding claim 22, as recited in claim 1, Vimpari teaches a method for assigning spreading codes to mobile stations located within a cell. Vimpari does not disclose the set of spreading codes comprises an all one's spreading code. Figure 4 of prior art shows a conventional technique for allocating spreading codes including an all one's spreading code, code 1. Because code 1 is one of possible spreading codes, it would have been obvious for one of ordinary skill in the art that code 1 can be included in the set of spreading codes taught in Vimpari invention.

3. Claims 3-5, 13-15, 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vimpari U.S. Patent 6,577,671 B1 and Toskala et al. U.S. Patent 6,377,606 B1 as applied to claim 1 above, and further in view of Dent U.S. 6,112,094.

Regarding claim 3, Vimpari and Toskala et al. do not teach "assigning a non-hopped sub-set of the larger set of spreading codes to individual ones of the plurality of subscriber stations for use on a system access channel. Dent teaches a frequency hopping (FH) cellular reuse scheme to reduce interference between cells using the same frequency at the same time. A set of FH sequences is any set of assignments of N channel frequencies to N communication links such that no two links use the same channel at the same time and the assignment of channel to link changes periodically for all links at the same instant; see column 5, lines 29-45. Dent further teaches that the N allowed channels might not comprise all available channels. Some channels frequencies can be taken up for other uses, e.g. for non-hopping broadcast control channel. Dent teachings are also in the same field of endeavor with Vimpari and

Toskala et al. teachings. Dent teaches a frequency hopping (FH) cellular reuse scheme to reduce interference between cells. In view of that, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Vimpari method can be modified to implement non-hopping broadcast control channels as taught in Dent invention. The motivation is that the subscriber terminal equipment needs to synchronize quickly on broadcast control channel. The broadcast control channel can be used as system access channel as appreciated by a person of average skill in the art.

Regarding claim 4, claim 4 is rejected on the same ground as for claim 3 because of similar scope. Furthermore, the broadcast control channel can be used as system control channel as appreciated by a person of average skill in the art.

Regarding claim 5, claim 5 is rejected on the same ground as for claim 3 because of similar scope. Furthermore, the broadcast control channel is a non-traffic channel because it carries no data as appreciated by a person of average skill in the art.

Regarding claim 13, claim 13 is rejected on the same ground as for claims 3 and 11 because of similar in scope.

Regarding claim 14, claim 14 is rejected on the same ground as for claims 4 and 11 because of similar in scope.

Regarding claim 15, claim 15 is rejected on the same ground as for claims 5 and 11 because of similar in scope.

Regarding claim 21, claim 21 is rejected on the same ground as for claim 13 because of similar in scope.

Regarding claim 24, because the synchronization occurs at the symbol boundary, hops between spreading codes inherently are made at a symbol boundary of all subscriber stations.

4. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vimpari U.S. Patent 6,577,671 B1 and Toskala et al. U.S. Patent 6,377,606 B1 as applied to claim 1 above, and further in view of Magnusson et al. U.S. Patent 6,163,524.

Regarding claims 25 and 26, Vimpari does not teach spreading codes comprising orthogonal, Walsh-Hadamard constructions having a variable spreading factor. Magnusson et al. teaches in another US Patent that varying spreading factor is a known technique for accommodating variable data rates in CDMA communication systems; see column 4, lines 33-48. Magnusson et al. further teaches that the information of different users is made distinguishable, in accordance with CDMA principles, by using distinguishable spreading sequences, such as mutually orthogonal Walsh-Hadamard sequences; see column 3, lines 45-60. Magnusson et al. teachings are also in the same field of endeavor with Vimpari and Toskala et al. teachings. Magnusson et al. teaches

utilization orthogonal Walsh-Hadamard sequences on different users, and varying spreading factor for accommodating variable data rates in CDMA communication systems. In view of that, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Vimpari and Toskala et al. teachings can be modified to implement orthogonal Walsh-Hadamard sequences with variable spreading factor as taught in Magnusson et al. invention. The motivation is that one of advantages of Walsh-Hadamard sequences for channelization is that user information in a received signal can be efficiently recovered by decorrelation using Fast Walsh Transform.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sarkioja et al. U.S. Patent 5,774,808 discloses "Method For Channel Allocation In A Cellular Communication System".

Hokanen et al. U.S. Patent 6,760,317 B1 discloses "Adaptive Transmission Channel Allocation Method And System For ISM And Unlicensed Frequency Bands".

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

Art Unit: 2631

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Pham Cong Tran

03/18/2005

Examiner KHANH TRAN